DOCUMENT RESUME

ED 066 183 LI 003 818

AUTHOR	Vaughn, William J.; Dunn, J. D.
TITLE	The Multidimensional Nature of Job Satisfaction in On-Going Organizations.
SPONS AGENCY	North Texas State Univ., Denton.
PUB DATE	72
NOTE	31p.; (0 References); This is the third of a series of articles reporting results of the North Texas University Research Studies in Job Satisfaction
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	Employee Attitudes; *Hypothesis Testing; Industrial Relations; *Job Satisfaction; Librarians; Libraries; Management; *Measurement Techniques; *Research; *University Libraries; Work Environment
IDENTIFIERS	JDI; Job Descriptive Index; *Null Hypothesis; On Going Organizations

ABSTRACT

Scientific investigation begins with the null hypothesis which states that there is no relationship between sets of phenomena or sets of variables. This hypothesis is based on the philosophical and physical principle that there is a tendency toward disorder in the universe. This is also commonly referred to as the law of entropy. In order to impose system and order upon the chaotic sequences of events in the managerial universe, methods of analysis must be discovered which accept the null hypothesis but also recognize the concomitant existence of the alternate hypothesis which states that there is a relationship between sets of phenomena. In the spring of 1972, job satisfaction in a large modern library was surveyed. The purpose of the study was to discover whether regular patterns of dispersion did exist in the library. The validity of the null hypothesis was assumed but the alternate hypothesis was not excluded. It was found that certain relationships did exist and statistical implications of the data appeared to nullify the broad premises of the null hypothesis. (Related studies are: LI003816, 003817 and LI003819 through 003821). (Author/NH)

ED 066183

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THE MULTIDIMENSIONAL NATURE OF JOB SATISFACTION IN ON-GOING ORGANIZATIONS

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LI 003 818

THE MULTIDIMENSIONAL NATURE OF JOB SATISFACTION IN ON-GOING ORGANIZATIONS*

Introduction

Much has been written in recent years about the nature of the relationships obtaining among basic phenomena of organizations. Investigations have been designed which had as their immediate objective the elucidation of management problems having to do with job satisfaction and job performance. It was hypothesized that these two basic work variables were connected in some (unexplained) fashion.

Scientific investigation begins with the null hypothesis. This basic starting point for all scientific investigation states that there is no relationship between sets of phenomena or sets of variables. That is, given phenomenon A and phenomenon B, there is no relationship between them. The task of the investigator is to disprove the null hypothesis, i.e., to demonstrate that real relationships do, in fact, exist between variables. The null hypothesis is based on the philosophical and physical principle that there is a tendency toward disorder in the universe. This is also commonly referred to as the law of entropy.

Certain basic principles of interpretation are implied in the law of entropy. The null hypothesis is always accepted until proved false; it is never proven true. Thus the null hypothesis involves heuristic rather than ostensive assumptions about: 1) the identity of phenomena; 2) the relationships characterizing the phenomena. The satisfaction-

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*This is the third of a series of articles reporting results of the North Texas State University Research Studies in Job Satisfaction. This research is financed by a North Texas State University Faculty Research Grant made to Dr. J. D. Dunn.

performance relationship stated in terms of the null hypothesis is: There is no relationship between phenomenon A (satisfaction) and phenomenon B (performance). Those who believe otherwise must disprove the null hypothesis, something that has never been done satisfactorily. Management theorists have used the null hypothesis defensively in the past, i.e., they have demanded positive proof that a relationship does exist between satisfaction and performance if anyone outside their closed circle had the temerity to assert the existence of such a positive connection.

Demonstration of Relationships

How can relationships be demonstrated? This simple query has haunted investigators for centuries. Although there is no one best answer to this question, the entrenchment of the null hypothesis in the thinking of scientific circles demands of the incumbent of the investigator role a careful consideration of alternative answers to the question.

If phenomena other than satisfaction-performance are to be considered, what can be said, in general, about relationships already existing or in the process of developing among them? There are many variables at work in the organizational setting. To the casual 'looker on' the null hypothesis sometimes appears to be the only possible explanation for characterizing the multiplicity of factors which seem to be randomly distributed over the management landscape. In order to impose system and order upon the chaotic sequences of events in the managerial universe we must somehow discover or invent methods of analysis which accept the truth of the null hypothesis but recognize, at the same time, the concomitant existence of the alternate hypothesis. This latter hypothesis

is the opposite of the null hypothesis. It states that there does indeed exist a relationship between phenomenon A and phenomenon B. To demonstrate the existence of this relationship is redargution of the null argument.

There is one precaution that should be observed whenever an explanation is sought of complex interlinkages of managerial variables: Non sunt multiplicanda entia praeter necessitatem, which can be roughly translated as, "assumptions required for purposes of explanation or argument are to be reduced to the absolute minimum." This principle of logic is also known as Occam's Razor or the law of parsimony. In terms of demonstrating the existence of relationships economy should be observed in hypothesizing more entities than are absolutely required to account for any observed regularity in sequence of events. In layman's language the simpler of two explanations is always preferable. The root essence of this belief is the notion that consistency, in the scientific sense, can be discovered through the exposure of relationships which refute the null hypothesis.

The Study

In the spring of 1972 the authors surveyed job satisfaction in a large, (N=67) modern library located in the Southwest. The purpose of the study was to discover whether regular patterns of dispersion did exist in the library. Initially the investigation assumed the validity of the null hypothesis, i.e., that no relationships existed among the six satisfaction variables and the fifty-five control variables. Of course this initial assumption mirrored the belief of the principal investigators that the applicability of the alternate hypothesis could

not be altogether excluded. In the sequela this belief was amply justified. Certain relationships did exist. Statistical implications of the data did appear to nullify the broad premises of the null hypothesis.

The Method

The investigation of job satisfaction was carried on in a university library which will be designated "Library A" in order to preserve anonymity. This is deemed necessary since further analyses of the library data are currently in process.

Job satisfaction questionnaires were mailed directly to all the full-time employees (N=107) of Library A. The number of respondents was considered high enough (N=67) to justify analysis of the data for purposes of testing the null hypothesis. In the next section the nature and limitations of the job satisfaction questionnaire will be discussed.

The employees of the library were informed that anonymity would be assured. Since confidentiality of data was a major concern of both the managerial and non-managerial personnel of Library A it was necessary to conduct a series of indoctrination seminars during which the overall objectives and goals of the satisfaction survey were explained and questions answered. The employees, in particular, were concerned that the research data would be seen by management of Library A. The principal investigators of this study took steps to assure all participants in the study that anonymity of data would prevail throughout all stages of the survey, including preliminary preparation of the study design and subsequent processing of the returned job satisfaction questionnaires. One step taken by the investigators, rather unusual but deemed essential

because of the high anxiety level of Library A employees, was to show basic computer worksheets to the employees which illustrated, in realistic and direct fashion, the coding methods used to ensure anonymity of participants. The investigators feel that this extra effort was well worth the trouble since subsequent interviews verified the wisdom of this procedure.*

The Job Satisfaction Instrument

The instrument used to survey job satisfaction in Library A was the Job Descriptive Index (JDI) developed by Patricia Cain Smith and colleagues at Cornell University during the decade of the sixties. The study by Smith, et al, is known as The Cornell Studies of Satisfaction. The book published in 1969, Patricia Cain Smith, Lorne M. Kendall, Charles L. Hulin, The Measurement of Satisfaction in Work and Retirement: A Strategy for the Study of Attitudes, Chicago: Rand McNally & Company, gives a full account of the activities of the Smith group which commenced in 1959.

The JDI is an eminently usable and practical instrument for measuring satisfaction. It is an instrument that can be used with widely varying groups of individuals working under quite different kinds of employment situations. The Job Descriptive Index is a tangible, tested instrument that can be taken into the field and applied in any organization tomorrow.

In addition stratified norms are available. For comparison purposes it is essential to have normative data available which configures the data

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*The procedure used in measuring job satisfaction in Library A was repeated, in essentials in five other libraries of the Interuniversity Council consortium. For purposes of anonymity these libraries will be referred to as B, C, D, E, and F.

along various demographic dimensions. For it is true that the norms for female employees, for example, differ from those for male employees. And other normative differences appear based on income, age, level of education, which are based upon a common framework of reference but whose only common link appear to be their co-existence as specific attitudes in a given work setting.

Demonstration of Relationships Through the Use of Density Functions

The Job Descriptive Index (JDI) gives the investigator of job satisfaction in a specific work setting a powerful tool for analyzing psychological states-of-mind of workers. By focusing the attention of employees upon differentiable aspects of the work environment it is possible to piece together the fragmented notions of a great many employees into an overall mosaic or pattern which submerges individual psychological impressions into a unified group consensus of opinion.

It is this common (group) consensus of employee attitudes that defines the organizational climate of opinion. Is it important that management know this climate? It is the purpose, in the remainder of this paper, of the investigators to demonstrate that the answer to this question is an emphatic affirmative.

A density function can be defined simply as a distribution of data. Usually the density function assumes the shape displayed by the several curves in Figure 1. Class intervals along the horizontal base of the

Figure 1
Density Functions of Library A

figure are associated with percentages plotted in the vertical field of the diagram.

The significance of a density function is that it captures the essence of data in capsule fashion. The science of statistics has as its capstone the principle known as the law of limited variety. Stated briefly, and ignoring complications due to such encapsulation, the law of limited variety states that there are very definite limits to the numerical magnitudes defining most scientific and physical phenomena. If this is so, then it is theoretically possible to reduce whole mountains of data to a very small compass.

In Figure 1 the investigators have reduced the job satisfaction data of Library A to a series of curves which define the specific attitudes of the employees in Library A. A computer program was used to obtain percentiles of the data. Class intervals were constructed to treat the data in such a way that its essential shapes and nature were emphasized.

What emerges in Figure 1 is a clear snapshot of employee (specific) attitudes. This, it must be remembered, is a cross-sectional view of group attitudes. As such it is impossible to predict an individual employee's attitude about any concrete condition existing in Library A. The extreme generality of Figure 1 constitutes its chief strength, for it is the group or consensus feature of the data which must be highlighted if understanding of aggregative attitudes is to be advanced. By examining closely the peaks and valleys of Figure 1 global assessment of the state of morale in Library A suddenly comes into sharp focus.

In Figure 1 it is evident that the employees in Library A possess a great deal of ambivalency in their feelings about the five dimensions of their work, as measured by the five Job Descriptive Index (JDI) attitude scales. Pay and promotion constitute one universe of values. The group consensus of the employees in Library A is that the policies and

practices of management in Library A in the areas of pay and promotion are not to their liking. Many of the library employees in Library A feel that the pay is too low and that promotional opportunities are below par.

However, Figure 1 also shows that Libray A employees are, by and large, satisfied with the work areas of people (coworkers) and supervision. Note too that the peaks for people and supervision areas of job satisfaction are "taller" than the corresponding peaks for pay and promotion.

The curve defining satisfaction with work (itself) (see Figure 1) is very interesting, especially in the way it interrelates with the other four job satisfaction curves defining areas of group consensus vis-à-vis specific attitudes toward discriminable areas of the job situation. There appears to be more ambivalency in the work category of job satisfaction than in any of the other classifications established for the study and analysis of job satisfaction. This diversity of opinion indicates that the employees in Library A are sharply divided in their notions of what constitutes interesting and worthwhile work.

It is possible to identify at least three separate "universes" or "climates" of opinion of employees in Library A (see Figure 1): 1) the universe of values defined by pay and promotion; 2) the universe of values defined by people and supervision; 3) the universe of values defined by work (itself).

Obviously the feelings of the employees in Library A are very ambivalent. This ambivalency in attitudes shows up in two ways in Figure 1: 1) differential feelings in regard to the five discriminable dimensions as assessed by the JDI; 2) differential feelings among individual employees in Library A with respect to a single dimension of the work situation,

for example, the work category of job satisfaction. The two-fold nature of ambivalency in job satisfaction is the causal agent in accounting for the horizontal separation of specific job satisfaction means (in Figure 1), as well as the individual dispersion of values for a given job satisfaction curve. Any explanation of these curves should include assumptions taking into full consideration the deep impact of ambivalency in job attitudes.

A partial theory of job satisfaction could be erected upon the premises implicit in Figure 1. Phrased in the familiar jargon of job satisfaction literature, it is the ambivalency in feelings which an employee possesses about his job that motivate him in his job. This motivation exhibits a Janus character of equivocacy. This equivocality shows up as a two-vectored psychological set of forces which tug at the employee. One set of forces (positive) tends to keep the employee on the job. These positive psychological forces are implicit in the favorable feelings which an employee has about the dimensions of his job. In Figure 1 these positive psychological forces can be identified unequivocally as people and supervision. An employee will tend to stay on the job because he likes his supervisors and because he enjoys working with his coworkers.

Another set of forces (negative) tends to drive the employee away from his job. These negative psychological forces are mirrored in the unfavorable feelings which an employee has about the differentiable aspects of his job. In Figure 1 these negative psychological forces can be identified with the pay and promotion curves. An employee will tend to leave his job because he dislikes various features of the pay and promotion policies of the management of Library A.

The universe of psychological forces represented by the work curve of Figure 1 is the most difficult to interpret and explain, by far. The

distribution of this (work) curve is almost rectangular in appearance. Ambivalency in feelings is so rampant in this category of job satisfaction that it is extremely difficult to make general assertations about the basic nature of the psychological forces motivating the Library A employees in this specific attitude. The mean for the work curve (Figure 1) becomes virtually worthless, as a meaningful statistic. Why is this? Because there are so many exceptions to the mean value that the exception becomes the rule! Such a situation approaches statistical anarchy. Such a situation presents many, many problems in interpretation. It would be better, for purposes of meaningful analysis, to enumerate the data, on an employee-by-employee basis rather than to cite group statistics, at least for this (work) category of job satisfaction.

Ambivalency in feelings indicates a diversity of attitudes in the group at large. Can anything meaningful be said about data which exhibits such extremes in feeling? The answer to this question will depend, in the final analysis, upon the uses for which the answer is to serve. In our case the research data answers not only this question but several other questions tangential to it. First of all, Figure 1 shows, in striking fashion, the relativity of attitudes prevailing among the Library A employees. The attitudes expressive of the feelings of these employees about their coworkers and their supervision are meaningful and significant only because they exist coetaneously with the set of attitudes defining the feelings of the employees about their pay and promotional opportunities. Thus, any meaning lurking in the data is ultimately traceable to the relativistic bias of the basic data from which the curves (Figure 1) were constructed. In practical terms this merely means that there is no such thing as absolute job satisfaction. The sooner that investigators abandon the search

for this mythical creature the better. It is only in examination and investigation of relativistic patterns of job satisfaction dispersions à la Figure 1 that any meaningful progress can be made in discovering the reasons behind such patterns.

Can the employee satisfaction patterns existing in one library be compared with satisfaction patterns in another library? This subject will now be examined. Figure 2 is the density function for Library B.

Figure 2
Density Functions For Library B

The patterns of job satisfaction feelings pictured in Figure 2 structure the attitudes of the librarians and other employees working in Library B. Again, we label the specific library involved with the anonymous label, "B," in order to ensure confidentiality of basic research data until all analyses have been performed. The configurations of the data in Figure 2 also reveal ambivalency in feelings.

One aspect of Figure 2 is most interesting. The sharp peaks defining group attitudes in the specific work areas of promotion, people, and supervision are quite prominent. We could say that the "visibility" of employee attitudes in these three areas of promotion, people, and supervision is exceptionally good. Such a sharply-defined series of job satisfaction curves is rare indeed. The statistician would characterize these three curves as possessing a great deal of kurtosis.

In terms of interpreting a general series of job satisfaction density functions the significance of the kurtosis concept is only too readily apparent. The greater the kurtosis the greater the polarization of feelings in this single dimension of the work situation. The sharper the peak, the "sharper" the polarization of attitudes.

What are the consequences of inordinate amounts of kurtosis showing up on the density function charts of organizations? It depends upon whether the kurtosis appears at the upper or lower scale of the horizontal axis. In Figure 2 the "lower" we get on the abscissa (go to the left) the "lower" the feelings this positioning represents. Conversely the "higher" we get on the abscissa (go to the right) the "higher" the feelings expressed. If any peaking is to occur, we would much rather have it occurring as far to the right on the abscissa as possible since this reflects very favorable attitudes. Conversely, any kurtosis occurring "low" on the abscissa is disconcerting to the investigator since this positioning is a clear indication of a low state of morale among employees.

The density function for Library C is shown in Figure 3. Figure 3

Figure 3
Density Functions For Library C

shows a sharp polarization of feelings in the areas of supervision and people. The extremely sharp peaks imply a unanimity of employee opinion that contrasts sharply with the opposite concept of ambivalency. Pay and promotion show lesser kurtosis, implying that forces of ambivalency are at work in this population of university library employees tending to produce more "box-like" or rectangular dispersions of job satisfaction patterns. The latter configurations are perpetually in conflict with the former. Which set of forces will triumph depends upon the impact of individual personalities in the organization. At stake is the polarization of attitudes along the abscissa which defines the degree of diversity existing in the organization as a whole.

The Library C satisfaction "snapshot" (Figure 3) discloses the typical pattern of group feelings about the work category of job satisfaction.

The work density function is rectangular in shape. This characteristic shape is reminiscent of a family of frequency curves (density functions) to which it undoubtedly belongs. This family of curves is distinguished by the relatively greater degree of flatness (platykurtosis) in the region about the mode of the frequency curve. It contrasts sharply with the typical frequency curve found in the opposite family of curves defined by relatively greater peakedness (leptokurtosis) in the mode region. Lying midway between these two families of frequency curves is yet another conceptual family of curves represented by the normal frequency curve which is its best-known member. The normal curve reflects a point approximately midway between too much peakedness and too little peakedness. The family name applied to this configuration of density functions is mesokurtosis.

Library D (Figure 4) has a rather curious assemblage of specific job

Figure 4
Density Functions For Library D

satisfaction curves. The unidimensional satisfaction curves for people and supervision are virtually identical. Both frequency curves display a large leptokurtic component in their basic makeup. This inordinate degree of leptokurtosis in the job areas of people (coworkers) and supervision is suggestive of a situation in Library D in which the usual bipolarity of feelings has somehow coalesced, groupwise, into a unitary consensus of opinion which is notable for the conspicuous absence of any major points of disagreement in these two specific areas of the work setting. Viewed from a research perspective the basic issue which arises is: what are the constitutive elements comprising the two sets of psychological forces acting to produce this identity of frequency curve configurations? If these elements could be identified and labelled it would

make incomparably easier the task of explaining the dynamics of group feelings which tend to assume varying shapes, not only in an organization at large, but from departmental unit to departmental unit within the organization.

The most notable feature of Figure 4, and the one which catches the managerial eye most forcefully, is the density function defining group feelings about work. This curve is not platykurtic. It differs, in shape, so drastically from the corresponding frequency curves in the other five IUC libraries that one is compelled to ask: What is it in Library D that would tend to produce a leptokurtic "X-ray" photograph of the work area? This question assumes especial significance in view of the fact that all the other work density functions are markedly platykurtic in shape and overall appearance.

In attempting to answer this question the investigators of this study considered several alternative theories of explanation. First, the shape of the work curve, in relation to the other four specific curves in Figure 4 was examined. Inspection of Figure 4 reveals a curious fact. The work curve is straining upward, as it were, towards the peak of the supervision and people curves. This is a clear indication that the work curve would like to attain the identity, if not the primary characteristics of, the leptokurtic members of this family of curves. The point to be emphasized here is that, from a comparative analysis of the density functions of all five libraries of the IUC consortium, it is evident that a leptokurtic work curve is something of an anomaly, comparable to the discovery of a unicorn among a herd of horses.

This discovery marks Figure 4 as a very unique document. For the first time there exists proof that there may be a tendency for employee

feelings about work (itself) to polarize in one direction. More research needs to be accomplished to ascertain if the basic thesis is tenable. The thesis could be stated as: Is there a definite tendency for the work density function to assume leptokurtic proportions? If this thesis is proved tenable, then other theses immediately suggest themselves: 1) Is the polarization of feelings implicit in the concept of leptokursis in a positive or negative direction? That is, what position along the abscissa is assumed by the center-of-gravity of the work data? 2) Is the polarization of feelings an ad hoc phenomenon or does it represent a more enduring or permanent state of affairs in the organization? 3) Can the causal forces at work in the organizational environment be identified, labelled, and comparatively assessed?

The frequency distributions in Figure 5 reveal sharp polarization

Figure 5
Density Functions For Library E

of employee feelings in the three specific work areas of promotion, pay, and people. The feelings of the employees in Library E about the pay policies and practices of Library E are decidedly unfavorable. Likewise, the peaked coincidence of the promotion curve with the pay curve suggests a degree of leptokurtosis in the underlying distribution of data which can be interpreted by the satisfactions investigator as a group consensus that promotional opportunities in Library E are pretty slim indeed.

Supervision and work (Figure 5) curves are rather atypical. The supervision curve assumes a platykurtic shape or outline which has major implications for the management of Library E. Note, first of all, that only in Library E does the supervision curve assume anywhere near the degree of flatness (absence of peakedness) that it does, in fact, assume

in Library E. This is a clear indication that employee feelings in Library E have not, as yet, polarized. There is evidently some doubt in the minds of employees in Library E about the quality (perhaps the quantity) of supervision in Library E. Stated in other words, there does exist a great deal of ambivalency in feelings of employees in Library E about their supervision. It would naturally occur to the management of Library E that some research is indicated, in order to pin down more specifically the reasons contributing to this curious platykurtic dispersion of data in the specific job satisfaction area of supervision. This may be only a temporary aberration in job satisfaction patterns, or it could possibly be indicative of larger, perhaps more deep-settled problems. In order to influence the supervision density function to assume a more desirable, i.e., more leptokurtic shape, it will be necessary for the management of Library E to consult with the managements of the other five IUC libraries comprising the IUC consortium of libraries in the North Texas region.

The density functions (frequency curves) for Library F (Figure 6)

Figure 6
Density Functions for Library F

come into focus quite sharply. This is one of the best "snapshots" of job satisfactions data that the investigators discovered during the course of this study. Feelings about supervision and people polarized leptokurtically at a position which is high enough on the abscissa to preclude any mistaking of the overall or global feelings which the employees of Library F possess in regard to these two categories of job satisfaction. If nothing more were known about the situation in Library F we could conclude that the management of Library F has been extraordinarily successful in conceiving and implementing its policies in the two specific work

areas of supervision and people. The management of Library F evidently has a situation closely akin to that which exists in Libraries B and C since all three people and supervision density functions are remarkably similar (see and compare Figures 2, 3, and 6). The managements of Libraries A, D, and E will probably want to consult with the managements of libraries B, C, and F in order to discover the reasons for the degree of success enjoyed by the latter managements in these two areas of managerial concern (supervision and people).

The work density curve (Figure 6) is fairly typical, considering the overall patterns of dispersion for this specific category of job satisfaction for the six IUC libraries as a whole. The work curve is tending to a pronounced rectangular configuration which is indicative of a bias to platykurtosis. As a general rule we can say that the more platykurtosis in a frequency distribution, the greater the degree of ambivalency in feelings which this pattern of dispersion denotes. Stated otherwise the attitudes of employees about their work (itself) displays an absence of consensus which is notable chiefly for its sharp contrast with the other specific work areas of interest. These latter categories almost invariably display density functions which are sharply polarized in nature. As a general rule we can say that the greater the leptokurtosis in a frequency diagram picturing job satisfactions the lesser the degree of ambivalency in feelings of employees about the respective specific dimension of the job which this density function mirrors.

Figure 7 shows the composite density functions for all six Inter-

Figure 7
Density Functions For Library Composite of Six Libraries (N=265)

university Council (IUC) libraries which participated in this study of job

satisfactions. The diagram is interesting because it captures, in capsule-fashion, the attitudes of 265 employees working in six IUC libraries. It is also significant, the investigators feel, because it provides the library study with a center-of-gravity for its data. Of necessity comparative analyses must resort to a common benchwork (center-of-gravity) in order to properly assess the implications for departures of individual data from the common data benchwork. In more practical terms this means that, in the ultimate analysis, group means and averages must stand in and represent, as it were, the multitudinous diversity of individual attitudes comprising the total library consortium.

The composite shapes of the frequency curves in Figure 7 are important too, in the sense that generalizations which emerge from a consideration of their basic configurations hold much more weight, in the final balance, than the individual library prototypes to which they owe their genesis. Irregularities in the data which figure prominently in the analysis of individual IUC libraries tend to smooth out in the Composite Density Function (see Figure 7). As a natural consequence a greater degree of credence and confidence can be placed in any generalizations which emerge from an analysis of the Composite Density Function. In short, a policy of diffidence must be followed by investigators when interpreting the individual density functions appertaining to the separate libraries of the IUC consortium. Similarly, a policy of confidence is in order when investigators are exploring the implications of the Composite Density Functions. The difference in investigatory policies proceeds from a consideration of the essential difference in the constitutive nature of the contrasting species of individual versus composite density functions.

Discussion of The Composite Density Functions For The Six IUC Libraries

Sharp polarization of feelings are quite evident in the areas of people and supervision. The leptokurtic frequency curves defining the thinking of employees in the IUC library consortium vis-à-vis their coworkers and supervision are placed well to the right on the abscissa. This indicates a favorable consensus of employee opinion. As a whole we can say that the policies of management are apparently working, at least in these two specific areas of the work situation. A pragmatic test of the theories and policies of management is: How are these theories and policies translated into action, in terms of the placement of the appropriate specific density function along the abscissa? The placement of the people and supervision density functions (Composite) is far enough to the right on the abscissa in Figure 7 to dispel any lingering doubts about the efficacy of management policy in these two areas. It should be remembered, in these generalizations, that the investigators are speaking of a hypothetical or Composite Library Management which has no true counterpart in reality. Only individual IUC libraries exist. The theoretical Composite Library Management which is treated of here is of heuristic value solely.

The feelings of IUC library employees about promotion and pay is consistently and uniformly unfavorable. This is shown by the placement of the pay and promotion frequency curves far to the left on the abscissa of the density diagram (see Figure 7). Such a sharp polarization is one indication that the attitudes of employees vis-à-vis differentiable areas of their work environment are sharply opposed to the trend of feelings which they possess in other discriminable aspects of their work. The Composite Library Management will want to study and research the reasons for this split in global feelings about the specific work areas involved.

Work (Figure 7) displays a platykurtic disposition, indicative of much ambivalency in the composite work force. The configuration of the work density function is a clear indication that no polarization of employee attitudes and feelings has occurred. The situation in this area of the job situation is very fluid indeed. It would appear that the thinking of the employees in the library complex defined by membership in the IUC consortium is loose, unstructured, and not too well-defined in this area. There does appear to be a definite tendency for the work curve to drift upwards and to the right. If this is a correct interpretation of what is actually happening, the news is good. But no such hypothesis is supportable at this time, since the evidence is much too thin to support such an assumption.

What is certain though is that the shape of the work frequency curve (density function) needs to be audited in future satisfactions surveys. Enumerative statistics can be used to delineate the broad outlines of the density pattern of forces. Descriptive statistics can then be applied to determine the positioning of the work curve along the abscissa. Once these two vital tasks of analysis have been achieved, the even more important task of deriving managerial implications from the established patterns can be commenced.

What should and must be stressed is the necessity of longitudinal studies of job satisfactions in the IUC consortium of libraries. This brief cross-sectional view of library satisfactions has only scratched the surface of potential findings. The obvious course of action for the future is to supplement these initial, tentative conclusions by more detailed hypotheses, supported by the great weight of longitudinal research studies. The results so far look extremely promising.

Summary and Conclusion

The discussion of the null hypothesis was essential for two reasons: 1) The universal nature of relationships requires a correspondingly large hypothesis which ignores the minutiae of detail to zero in on major implications for managerial policy and action. The statement of the null hypothesis does this admirably. 2) Managerial insight requires a broad vision of what constitutes the ultimate limits of its area of concern. The implications of the null hypothesis reach far beyond the boundaries of its mere assertation. These two parameters of delimiting significance can be taken to signify the deep concern of the management theorist in searching for sweeping generalizations which yet can be harnessed for practical managerial applications with a minimum of fuss and bother. Again, the null hypothesis fits the bill nicely when measured against this expectation.

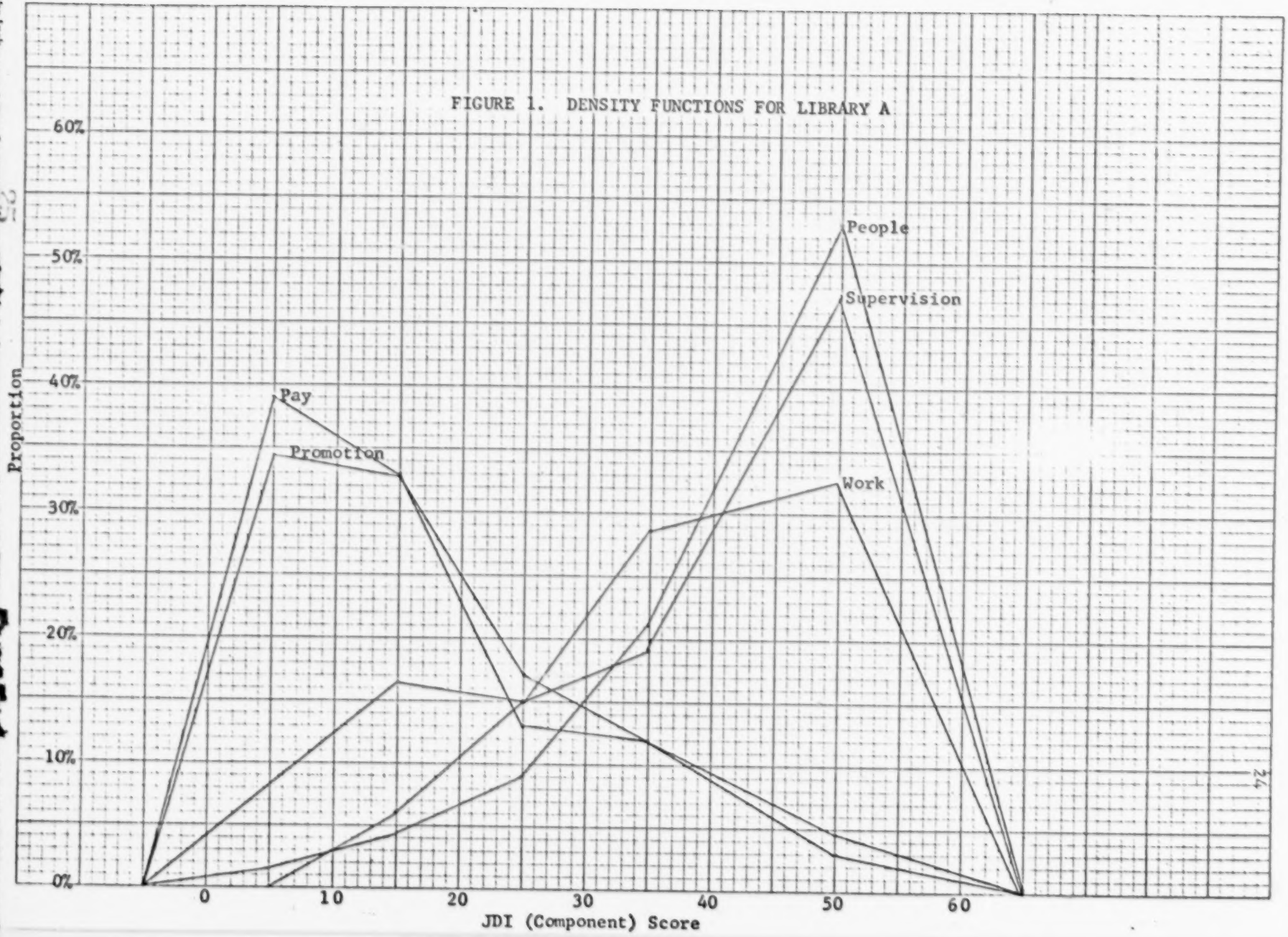
It is all-important to determine the nature of relationships existing in any management situation. The scientific method presumes that by thorough investigation into the situation and conditions constituting the work environment that such relationships as exist can be brought to the surface and analyzed for content. What is important and what should be stressed is not the method by which such relationships are established, but the universality of the content of such relationships. The conclusions which emerge from examination of density functions must be verfiable through the application and use of methods totally dissimilar to the one originally used. If it turns out, on consideration of the alternative options possible in treatment of the data, that mathematical functions can best (optimally) be utilized in the search for relationships, then this method should be used, to the exclusion of other methods. If it appears

on the other hand, that statistical graphs can be utilized more efficiently in the search for relationships then the management analyst may want to supplement the mathematical functions approach with such statistical tools as density functions, histograms, correlation coefficients, and frequency diagrams. The items mentioned are merely illustrative and are not meant to be an exhaustive enumeration of the currently accepted means by which relationships can be established.

When such relationships, by whatever means, are finally established, the management analyst has only started. The results of his findings must now be communicated to all managers and employees having an interest in the research study. This will normally be accomplished informally through the process of meetings arranged with the concerned managers and employees. To disseminate research findings on a larger scale it is essential to publish the findings widely through the available media. It is suggested that serious consideration be given to publishing the research findings in the Educational Resources Information Center (ERIC) official journal. The microfiche developed by this institution is lightweight and can be transported relatively cheaply and quickly throughout the country. Other sources of information dissemination should also be considered, in connection with the ERIC vehicle. By making the research findings widely available feedback sources can be expected to develop which will be efficacious in generating a reverse flow of information which is extremely useful in either confirmation or redargution of the original research theses. By stimulating these currents of information flow the management process can be considerably strengthened and improved through ecletic adoption of those research hypotheses which appear to be directly in line with intuitive conclusions reached independently, using other methods, by front-line

managerial personnel. The ultimate goal is the establishment and maintenance of organizational effectiveness. This overriding philosophy takes precedence over the myriad details implicit in the research process itself. The payoff comes in the increasing of understanding of basic management processes. Basic research is only one means through which this goal can be achieved.

FIGURE 1. DENSITY FUNCTIONS FOR LIBRARY A



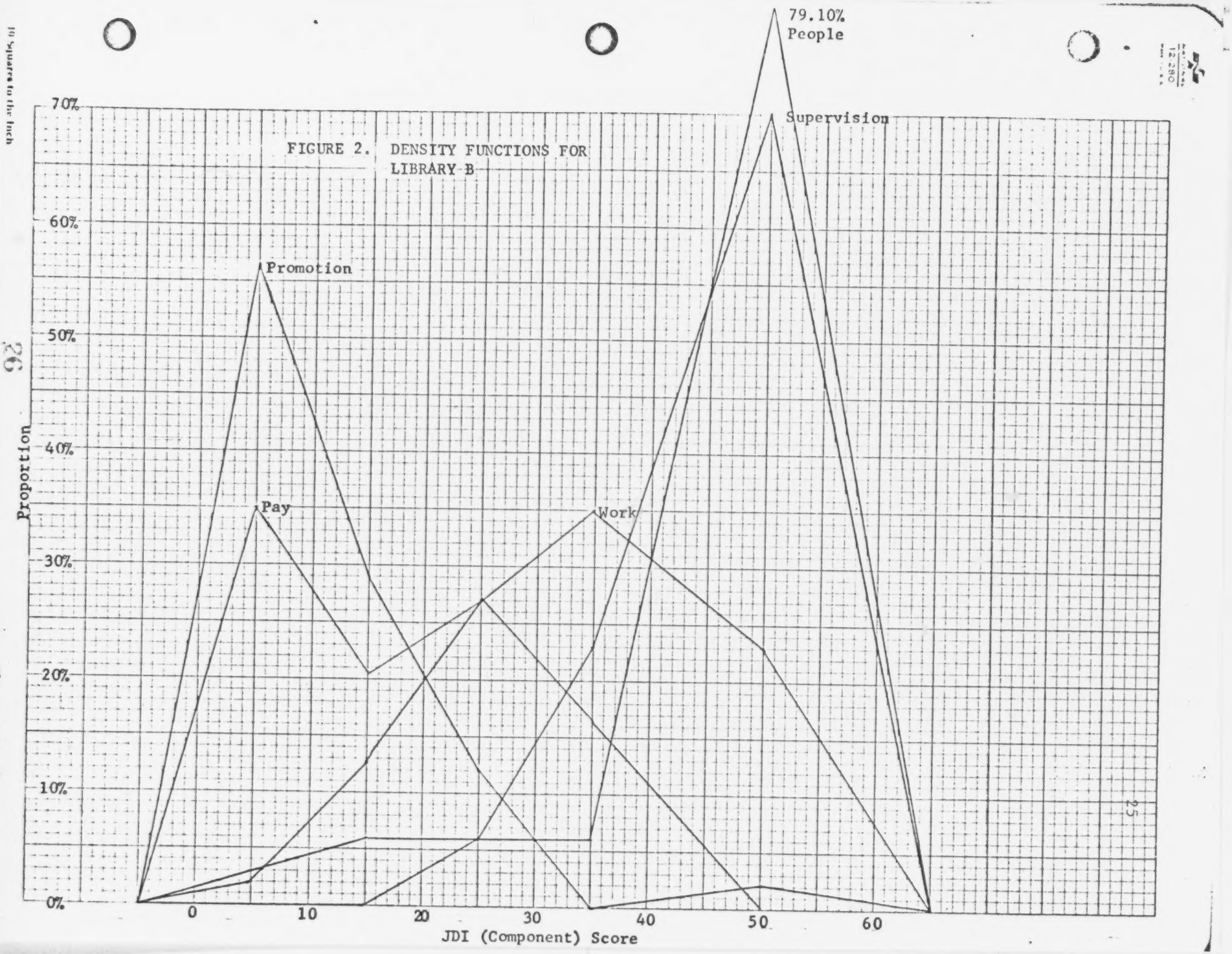


FIGURE 2. DENSITY FUNCTIONS FOR LIBRARY B

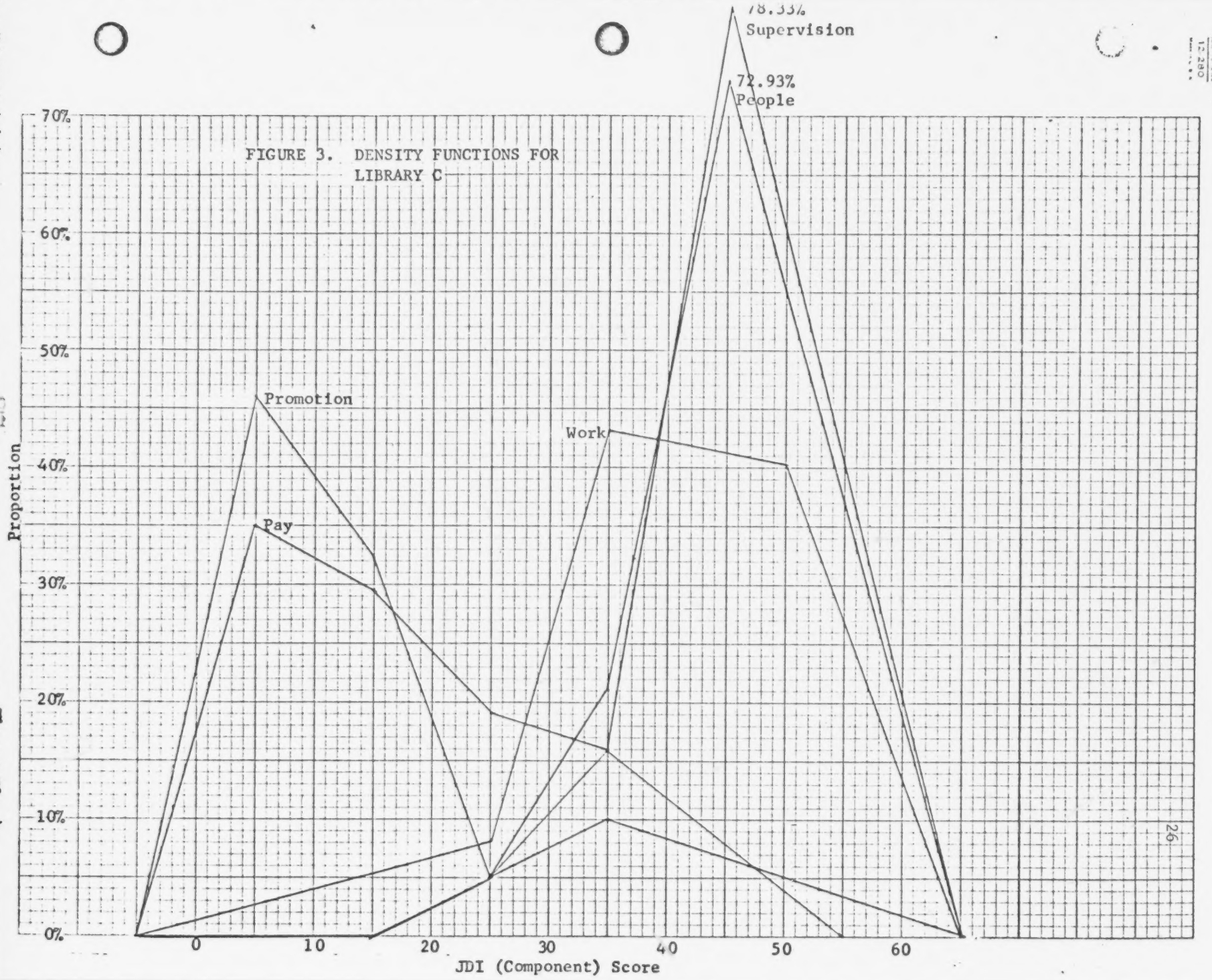


FIGURE 3. DENSITY FUNCTIONS FOR LIBRARY C

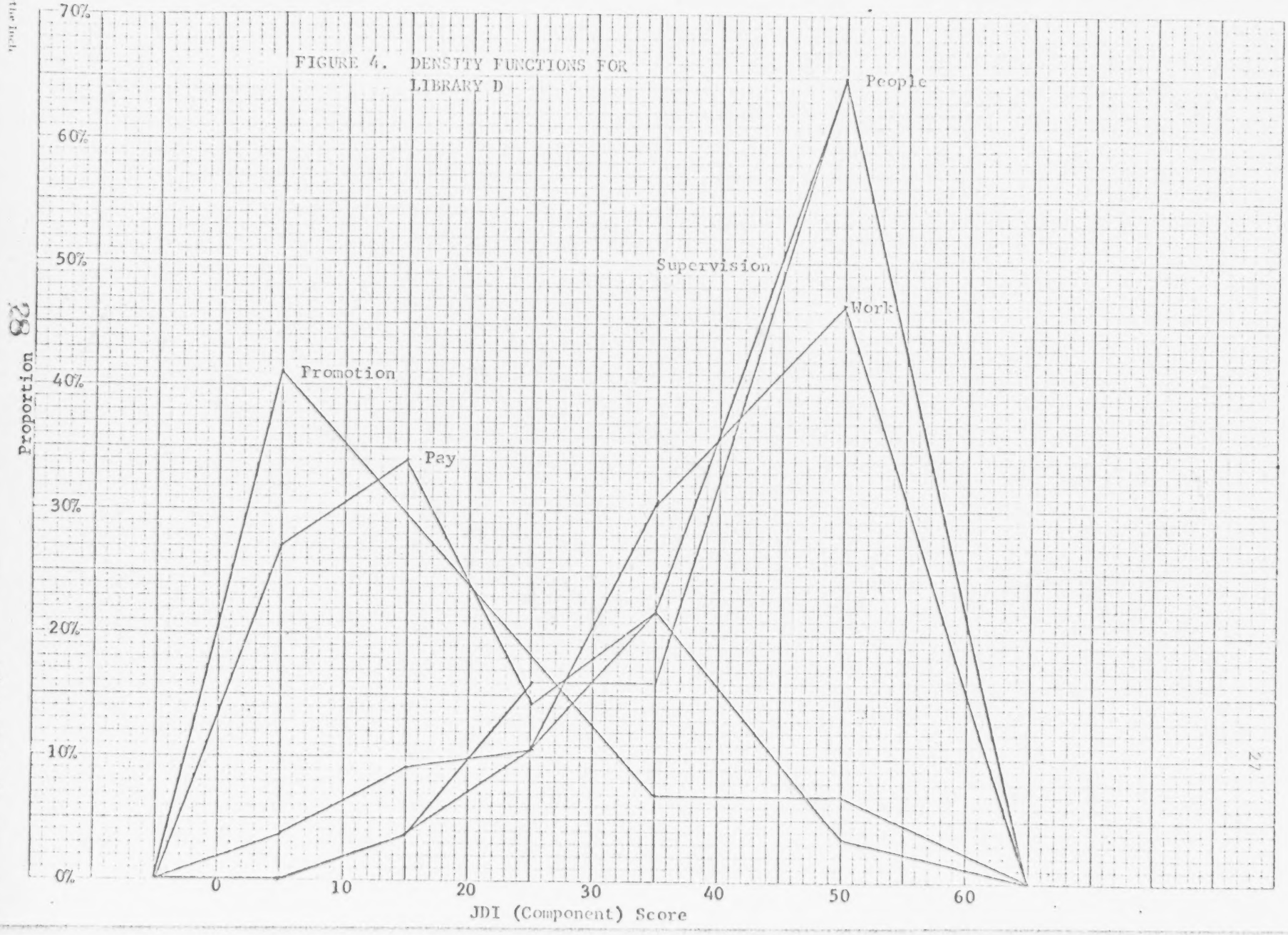


FIGURE 4. DENSITY FUNCTIONS FOR LIBRARY D

FIGURE 5. DENSITY FUNCTIONS FOR LIBRARY E

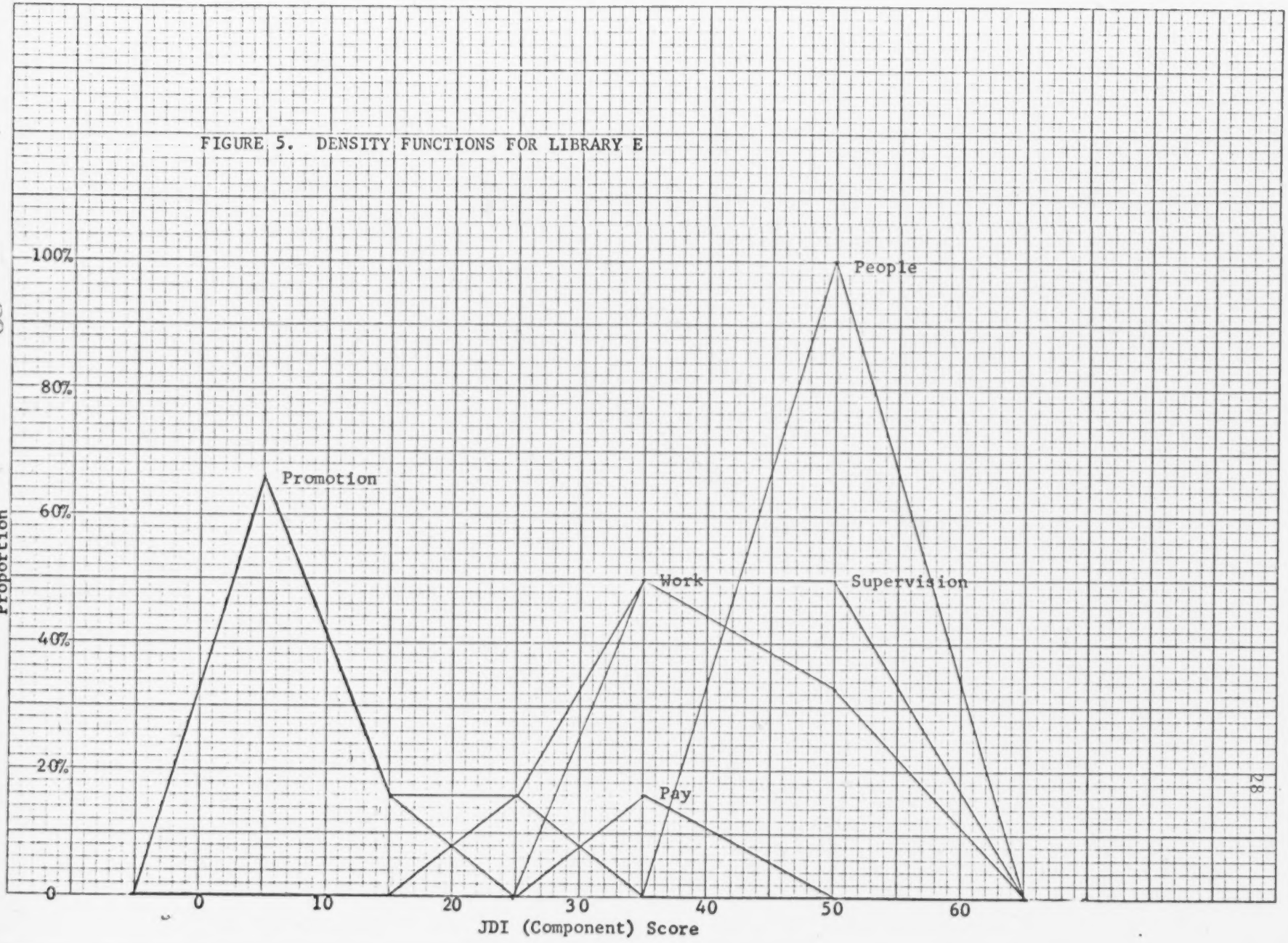
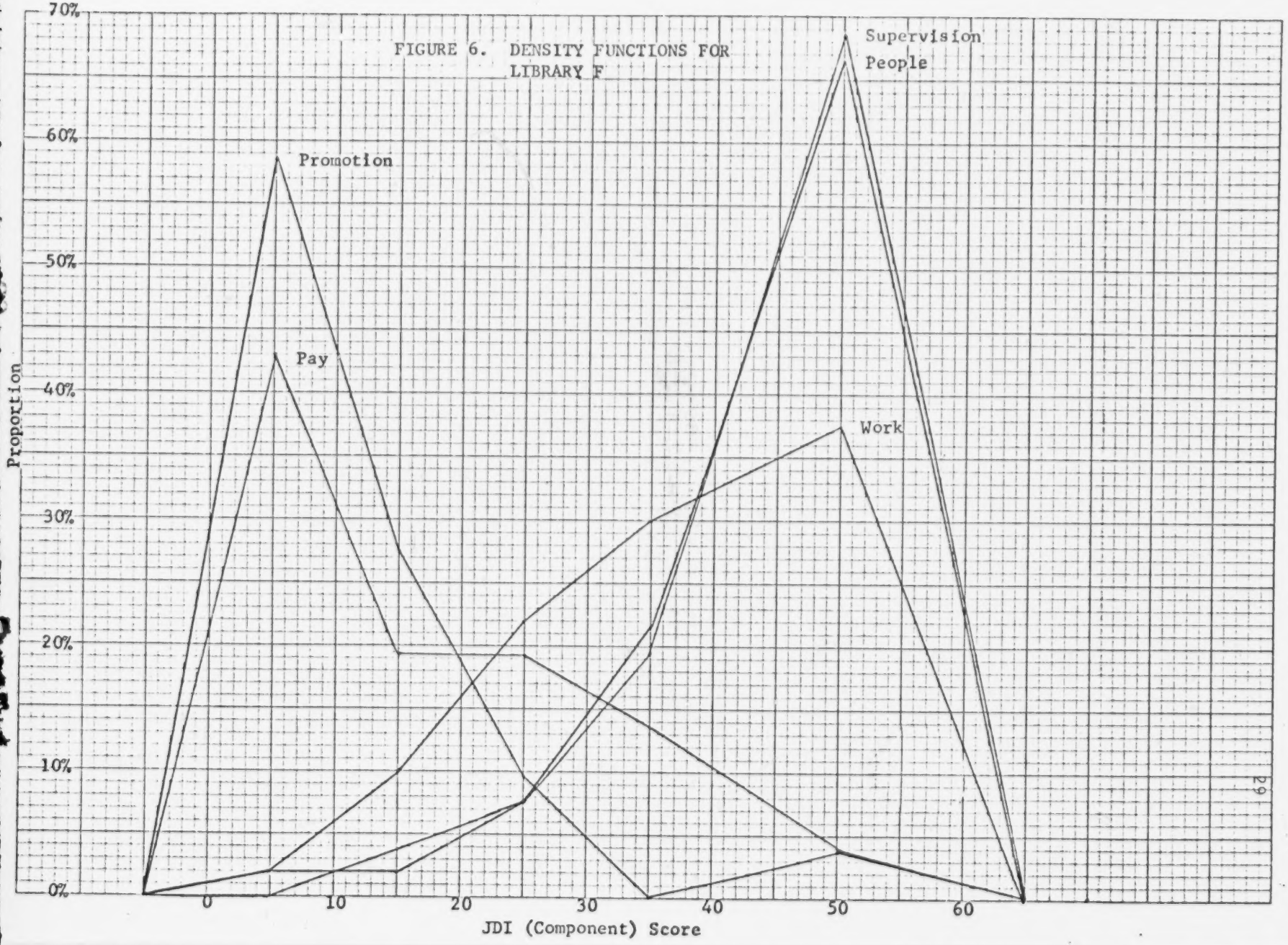


FIGURE 6. DENSITY FUNCTIONS FOR LIBRARY F



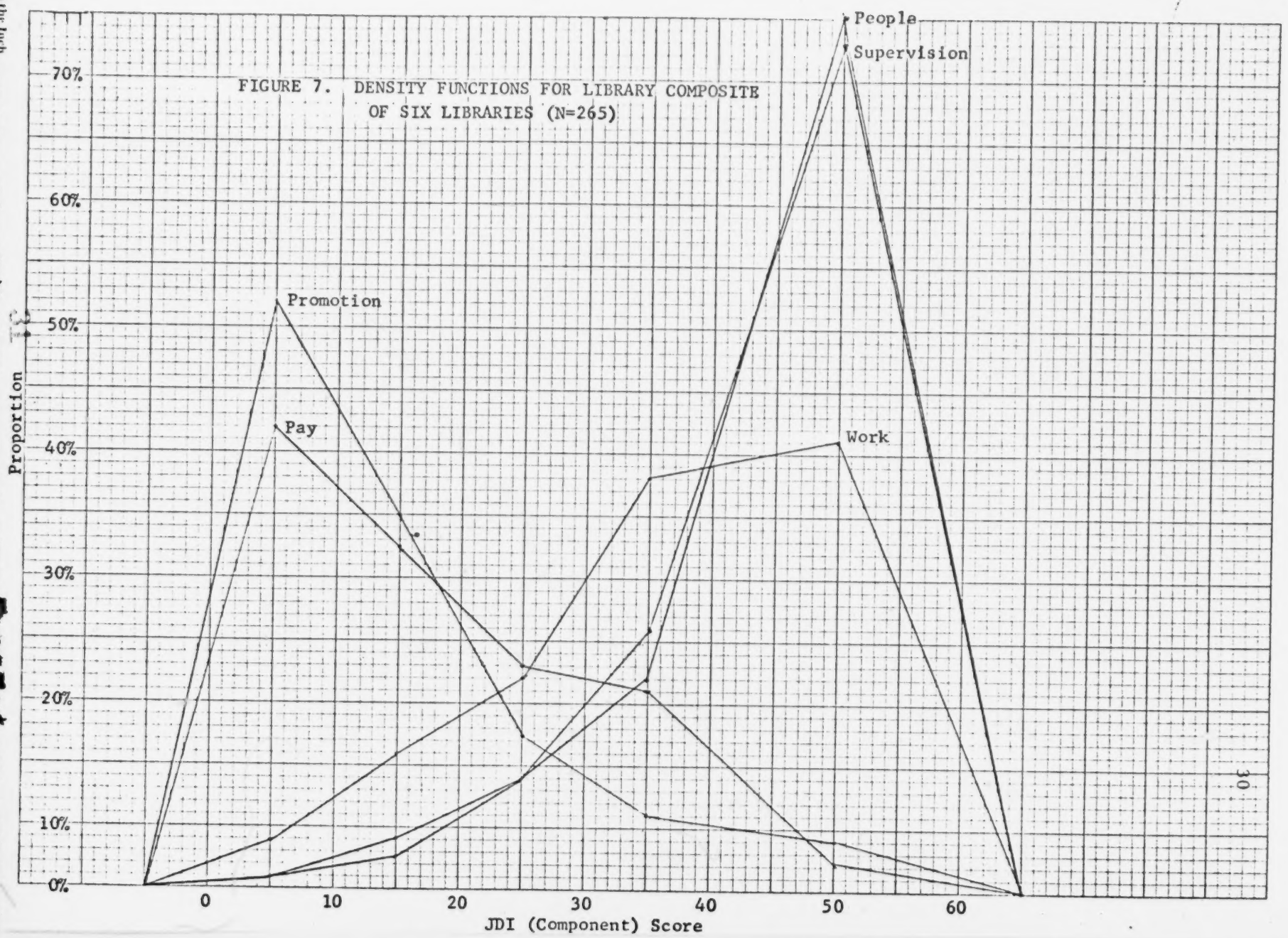


FIGURE 7. DENSITY FUNCTIONS FOR LIBRARY COMPOSITE OF SIX LIBRARIES (N=265)